



KMCH Touch

Quarterly News Journal of Kovai Medical Center and Hospital



BREAST RECONSTRUCTION AFTER CANCER - OFTEN NOT OFFERED BECAUSE WE THINK INDIAN WOMEN ARE NOT INTERESTED BUT WE MAY BE VERY WRONG

Also Articles on



Research Focus:
Our Growing NCD Burden



Intrauterine Transfusion:
For Hemolytic Disease of Fetus



Paediatric Orthopaedics:
Our Experience with Ponsetti method for Club Foot



Simultaneously Three Kidney Transplantations Done By Kidney Sharing:
First time in South India

Message From Executive Director

Breast Reconstruction After Cancer



Breast cancer is the #1 cancer for women in urban India. As affordability increase and treatment options improve we have to give breast reconstruction work a serious thought. We are seeing younger and younger women come to our cancer center for treatment. Not offering women in their 30s, 40s and 50's reconstructive surgery when lifespans are increasing into the 80's and 90's may be a gross injustice especially when there is does not worsen in cancer outcomes

We also thought we give a chance to show a spotlight on some of the interesting research work that is going on. Non communicable disease (NCDs) rates are set to sky rocket. Our research is showing we have only identified 50 % of the diabetics. Similar data patterns emerge in our stroke research, liver research (fatty liver incidence), etc

I leave you with a quote

I believe in innovation and that the way you get innovation is you fund research and you learn the basic facts.

- Bill Gates

Dr Arun N Palaniswami
Executive Director

Editorial Board

How to enthuse research among doctors in India?

For a country of more than a billion, our output of high-quality research work and publications is greatly disappointing. Our litany of excuses is much more that our list of publications including lack of time, busy OPD clinics, lack of dedicated staff, no protected time for research, no financial remuneration and this list goes on. As a national speaker, I get questioned often by audience as to why we are predominantly quoting evidence from Western countries when we have so much material in India! I refer often to our great scientist and mentor Dr Abdul Kalam who says that there is no Mr Clean who is going to jump from the heavens to do research in India, every one of us should be the change that we want to see in healthcare research in our country. However, with all the pessimism in India about research, there is always eternal optimism with small but significant changes in this area over the last decade.

My dream of pursuing research in diabetes started with a case of a young girl presenting with diabetic ketoacidosis which finally turned out to be pesticide poisoning. This led to a thought as to whether chronic pesticide exposure can be an additional risk factor for diabetes in India. This has led to huge epidemiological studies in our region with around 10 published papers over the last 4 years, some in high impact factor journals. Our Chairman dreamt of exploring prevalence of diseases in our own geographical areas and this led to the establishment of the KMCH Research Foundation in 2015. Ours is now a DSIR approved organisation with two scientists, a scientific Committee of five doctors and links with the Dr NGP Group of Institutions, IIT Madras, Sastra University, University of Michigan and our Medical College Hospital. We are passionate about making our Research Foundation an ICMR/ WHO Collaborating Center on rural health, especially focusing on NCDs. Research is motivating and has the potential to give unique Indian solutions for Indian health problems.

On behalf of KMCH Research Foundation, we give a clarion call to all our colleagues to be enthused in research, collect data, spare sometime in a week for research that leads to publications, apply for grants through our national agencies and be a part of the work we do to improves lives of the common man through research. We promise all our support for anyone interested in research, kindly contact us through our research foundation office within our campus. In the words of Mahatma Gandhiji, let us be the change that we want to see in healthcare research in India.

Dr. Krishnan Swaminathan MD FRCP (Edin)
KMCH Research Foundation

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PROJECT KATHIR, A RAY OF HOPE

**A Joint Initiative of KMCH, Rotary Club of Coimbatore Central & Idhayangal Charitable Trust
to help poor Children with Type 1 Diabetes**



Dr. Nalla G Palaniswami - Chairman, KMCH, Inaugurating the "PROJECT KATHIR" RAY OF HOPE, signed MOU, in the presence of (Right) , Rtn. Arivudai Nambi - President, Rotary Club of Coimbatore Central, Dr. Krishnan Swaminathan - Consultant Diabetologist & Endocrinologist, KMCH, Rtn. P.P. Lakshmanan, Rtn. Kamalesh Patel, Secretary, (Left) Rtn. Hemant Shah - Assistant Governor RI dist 3201, Rtn. Ilango - G.G.R. RI dist 3201, Rtn. J. Ashwinkumar,

It may come as a surprise to many that there are more than 1000 children with insulin requiring diabetes in Coimbatore and adjoining districts. There are around 1 Lac children throughout India with Type 1 diabetes. This differs from Type 2 diabetes (adults) in that these children need life long insulin injection, usually four times a day. If not done properly, this will lead to diabetic coma and death. At KMCH, we have nearly 400 children with this condition with many families from poor socio-economic status. Cost of insulin and consumables along with hospital admissions are extremely high. The good news is that if they are treated properly with insulin or given a gadget called "Insulin pump" (a clever device that pumps insulin continuously) they lead normal happy healthy lives.

Dr. Nalla G Palaniswami - Chairman, KMCH in association with Rotary club of Coimbatore Central and Idhayangal Charitable Trust (www.idhayangal.org), a charity dedicated to help poor children with type 1 diabetes, have joined hands to support poor underprivileged children with Type 1 diabetes, through a project named "PROJECT KATHIR, A RAY OF HOPE". This project was inaugurated at KMCH Hospital on 27th April 2019. Around 40 children are benefited from this project, which will support lifesaving Insulin treatment, consumables and Insulin pumps. Each pump Costs Rs.1.5lacs and will be life changing for these children. Dr. Nalla G Palaniswami has pledged continued support for these children.

According to Mr. Arivudai Nambi, President of Rotary Club of Coimbatore Central, this Rotary International grant project was possible due to collaboration of Rotary Club of Coimbatore Central with Rotary Club of Necketal, Switzerland and Rotary Club of Sterling, USA. The Project cost is \$94,000/- (approx. Rs66 Lakhs).

Event & Award Photos



KMCH Research Foundation: The Journey from 2015 to Date



BLS Training Programme to School Students



KMCH Win Best Brand Award from BNI Champions



Hybrid Workshop Perioperative & Chronic Pain Blocks - AORA 2019



International Yoga Day Celebration At Sulur KMCH Hospital

Breast Reconstruction: It's a Reality to have Breast Again...

Dr Subhash M Kale *Consultant Plastic, Microvascular, Cosmetic & Reconstructive Surgeon*

Breast is an important external organ of female identity. Multiple Psychological studies on mastectomy patients show depression and loss of femininity in post op period. No woman would like to lose her breast and if forced to undergo a mastectomy, studies show that given majority of women will go for breast reconstruction surgery.

Breast cancer is the number 1 cancer for women in the western world and is becoming the number 1 cancer among Indian urban women. More and more frequently with increasing awareness and better treatment options, Breast cancer is becoming discovered at earlier stages and the population has become more affordable but still mindset with offering breast reconstruction is unchanged.

It should be noted that studies have shown breast reconstruction has:

- Has no change in long term cancer outcomes
- No difference in rate of development of local cancer recurrence
- No difference in the ability to detect local cancer recurrent &
- No significant delays in getting other cancer treatments

This becomes problematic if a young or middle age patient who are affordable are not offered reconstructive surgery.

Breast reconstruction is reformation of breast after breast removal surgery. It involves use of autologous (own body) tissue from other parts of body and mould it into shape of natural looking breast, nipple and areola.

Most commonly for breast cancer patients undergo breast excision (mastectomy) surgery. Depending on the stage of breast cancer, radical mastectomy, modified radical mastectomy or skin sparing mastectomy is done.

Thanks to present advanced Microvascular Plastic & Reconstructive surgery, Oncosurgery, radiation and chemotherapy, most of the breast cancers can be detected in early stages and can be reconstructed to near normal. It gives back confidence and near normal quality life to all women.

How it is done? Breast reconstruction can be done with variety of tissues which are expendable in body. Common workhorse flaps for breast reconstruction are free TRAM flap, free DIEAP flap, free ALT flap, Free TUG flap, Free SGAP, Free IGAP flaps. Pedicled LD myocutaneous flap, pedicled TRAM flaps are also good options with limited reconstruction.

In Breast reconstruction, we take required amount of tissue most commonly skin and fat along with its blood supply and it's called as flap. Depending on the type of blood vessels and territory of tissue they are named.



Breast Cancer. 2018 Jul;25(4):464-469. doi: 10.1007/s12282-018-0846-8. Epub 2018 Feb 13.

Meta - Analysis for Psychological Impact of Breast Reconstruction in Patients with Breast Cancer

Chen W, Lv X, Xu X, Gao X, Wang B.

Aims: This meta-analysis aimed to evaluate the impact of breast reconstruction on the psychological aspects in patients with breast cancer.

Methods: A literature search on Pub Med, Embase, Science Direct and Google scholar databases was conducted up to September 2017. The pooled risk ratio (RR) or standard mean difference (SMD) and the corresponding 95% confidence intervals (CIs) were calculated using the RevMan 5.3 software.

Results: A total of 5 studies were included in this meta-analysis. There were 551 breast cancer patients receiving mastectomy plus breast reconstruction and 574 breast cancer patients receiving mastectomy alone. The results showed that breast reconstruction can significantly decrease the incidence of anxiety (RR = 0.62, 95% CI 0.47-0.82, P = 0.0006)/depression (RR = 0.54, 95% CI 0.32-0.93, P = 0.02) and scale score for evaluating anxiety (SMD = - 0.20, 95% CI - 0.37 to - 0.03, P = 0.02)/depression (SMD = - 0.22, 95% CI - 0.39 to - 0.66, P = 0.007) compared with mastectomy alone.

Conclusions: Breast reconstruction after mastectomy was benefit for improving the psychological damages in patients with breast cancer.

The 3 main areas where flaps are taken from are:

- The Back (Ex - latissimus dorsi LD flap)
- The abdomen (Ex - Diep Flap)
- The buttock (Ex - Superior gluteal Artery Perforator flap SGAP)

Abdominal Flaps The abdominal flap for breast reconstruction is the TRAM flap (Transverse Rectus Abdominis Myocutaneous Flap) or its technically distinct variants of microvascular "perforator flaps" like the DIEP / SIEA flaps. In a TRAM procedure, a portion of the abdominal tissue group, including skin, adipose tissues, minor muscles and connective tissues, is taken from the patient's abdomen and transplanted onto the breast site. Both TRAM and DIEP / SIEA use the abdominal tissue between the umbilicus and the pubis. The DIEP flap and free-TRAM flap require advanced microsurgical technique. Both can provide enough tissue to reconstruct large breasts. These procedures are preferred by most of the breast cancer patients because they result in a tight well contoured abdomen-abdominoplasty (tummy tuck), and allow the breast to be reconstructed with one's own tissues instead of a foreign implant.

TRAM flap procedures may weaken the abdominal wall and torso strength, but are tolerated well in most patients. To prevent muscle weakness and incisional hernias, the portion of abdominal wall exposed by reflection of the rectus abdominis muscle may be strengthened by a piece of surgical mesh placed over the defect and sutured in place. Perforator techniques such as the DIEP (deep inferior epigastric perforator) flap and SIEA (superficial inferior epigastric artery) flap require precise dissection of small perforating vessels through the rectus muscle, and purport the advantage of less weakening of the abdominal wall, though rectus abdominis muscle function may still be compromised. Other total autologous tissue breast reconstruction donor sites include the buttocks (superior or inferior gluteal artery perforator flaps (SGAP or IGAP)). The purpose of perforator flaps (DIEP, SIEA, SGAP, IGAP) is to provide sufficient skin and fat for an aesthetic reconstruction while minimizing morbidity from harvesting the underlying muscles. DIEP reconstruction generally produces the best outcome for most women.

In KMCH commonly used the free flap for breast reconstruction is free DIEAP flap. It means Deep Inferior Epigastric Artery Perforator flap. It is a robust flap and expendable tissue.

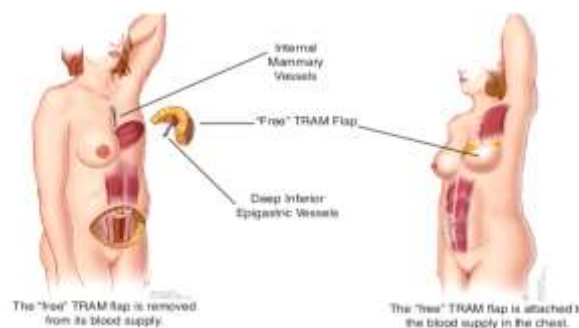
Most of the time mastectomy is performed in middle age females who have already completed their families. Middle age females, post pregnancy develop a lot of excess loose lower abdominal wall skin and fatty tissue. This lower abdominal wall skin along with fatty tissue can be harvested on its blood supply i.e. deep inferior epigastric artery. This is muscle and rectus sheath sparing surgery so chances of lower abdominal ventral wall hernia is less. Skin and fat from lower abdominal matches breast tissue.

Nipple Areola Complex Reconstruction: To restore the appearance of the breast with surgical reconstruction, there are a few options

regarding the nipple and areola.

A nipple prosthesis can be used to restore the appearance of the reconstructed breast. Impressions can be made and photographs can be used to accurately replace the nipple lost with some types of mastectomies. This can be instrumental in restoring the psychological well-being of the breast cancer survivor. The same process can be used to replicate the remaining nipple in cases of a single mastectomy. Ideally, a prosthesis is made around the time of the mastectomy and it can be used just weeks after the surgery.

Nipple reconstruction is usually delayed until after the breast mound reconstruction is completed so that the positioning can be planned



precisely. There are several methods of reconstructing the nipple-areolar complex, including:

Nipple-Areolar Composite Graft (Sharing) - if the contralateral breast has not been reconstructed and the nipple and areola are sufficiently large, tissue may be harvested and used to recreate the nipple-areolar complex on the reconstructed side.

Local Tissue Flaps - a nipple may be created by raising a small flap in the target area and producing a raised mound of skin. To create an areola, a circular incision may be made around the new nipple and sutured back again. The nipple and areolar region may then be tattooed to produce a realistic colour match with the contralateral breast.

Conclusion: Because of a multitude of factors

- Rising incidence of breast cancer
- Improving treatment options and 5 year survival increasing with options such as targeted therapy
- Rising affordability of Indian Population

Breast cancer reconstruction cannot be ignored in the treatment of breast cancer. Especially in young patients and middle aged patients who are looking for a long time lifetime of remission, not offering breast cancer reconstruction because of a notion that Indian women will not be interested is false ideal and is injustice to the care which we can provide. Breast reconstruction must be a part of the conversation we have with our breast cancer patients going forward.

For any questions, please contact KMCH Guest relations or Breast clinic to refer you to a plastic surgeon.

FAQs: Breast Reconstruction After Mastectomy

What is breast reconstruction?

Breast reconstruction is the rebuilding of a breast with the patient's own body tissues or using breast implants to construct a natural-looking breast.

Who can get a breast reconstruction done?

Anyone who has undergone a single or double mastectomy (surgical removal of breasts) due to breast cancer can get their breast reconstructed to the normal size.

Why do women undergo breast reconstruction?

- To not have a constant reminder of breast cancer
- To maintain their body image
- To make breasts look balanced when they're wearing clothes
- To avoid using an external prosthesis.

What is the best time to undergo reconstruction?

Breast reconstruction can be done immediately (primary) after cancer excision surgery or it can be delayed (Secondary) in second stage as elective surgery after few months.

How does breast reconstruction work after cancer surgery?

There are two methods:

- 1) Using Tissue : Only the cancer-affected area of the breast is removed. The surgeons then try to balance the size of that breast with the other by using the patient's own tissues from another body part – lower abdomen or back.
- 2) Using Breast implants: When the entire breast is amputated, a full reconstruction of the breast takes place. This is uncommon in India.

Immediate Versus Delayed Breast Reconstruction

IMMEDIATE BREAST RECONSTRUCTION

Advantages

- 1) Decreased risk of social or emotional difficulties
- 2) Better cosmetic results
- 3) Possibly fewer surgeries and lower surgery cost
- 4) No difference in rate of development of local cancer recurrence
- 5) No difference in the ability to detect local cancer recurrence
- 6) No significant delays in getting other cancer treatments

Disadvantages

- 1) Harder to detect mastectomy skin problems
- 2) Longer hospitalization and recovery times than if you had mastectomy alone
- 3) More scarring than mastectomy alone



DELAYED BREAST RECONSTRUCTION

Advantages

- 1) Additional cancer therapy after mastectomy (such as radiation) does not cause problems at the reconstruction site
- 2) Gives patients more time to consider breast reconstruction options
- 3) Less Local Surgical site wound complications in high risk patients (example : diabetic , obese)

Disadvantages

- 1) Mastectomy scar on chest wall
- 2) Requires additional surgery and recovery time
- 3) Sometimes difficult to reconstruct after scarring occurs
- 4) Less optimal cosmetic results



Pixel Laser Therapy : New Armament for Scar Treatment

Dr Subhash M Kale *Consultant Plastic, Microvascular, Cosmetic & Reconstructive Surgeon*

Scars are very scary. Scars results from trauma, accidents and surgeries. With increased awareness about cosmetic surgery and social media everyone wishes to look beautiful. No body wants any kind of scars on body, especially on face and exposed parts of body. Scars are outcome of injury due to accidents, surgery, infection or acne.

Various modalities of treatment have been used for scar management with no satisfactory results. Wound healing for each individual is different as per their genetic makeup. Some people scar settles very well but some develop hypertrophied scar or keloid scars. Some scars turn into hyper or hypopigmentation.

Different modalities of treatments are like, scar massage, revision surgery, steroid injections, compression garments, silicon gel therapy, dermabrasions, chemical peel and so on. Recently a new modality is added to our armamentarium FRACTIONAL PIXEL LASER THERAPY. (1)

LASER stands for Light Amplification by Stimulated Emission of Radiation. There are different types of LASERs available depending on their type of wavelengths and mediums. Ablative lasers such as the carbon dioxide (CO₂), erbium: yttrium-aluminum-garnet (Er:YAG), and pulsed dye (PDL) lasers have been tried in traumatic scars(2)and non- ablative lasers have also been used (3). The fractional technology is a novel strategy which safely improves the appearance of scars. (1)

LASER's are in demand by patients for the scar management as it has very less downtime and no In-patient admission required. It can be done as a lunch hour procedure. Patient can come walk in and go with treatment done in same day. Ablative lasers such as Co₂ and Er-YAG found to be associated with increased incidence of side effects and prolonged recovery period. To overcome these side effects and resurface scars, the fractional lasers were introduced. (4,5) They produce a controlled thermal injury in the dermis followed by neocollagenesis and remodeling.

Fractional lasers are boon to scar managements and they offer best results with almost no side effects. Fractional pixel laser therapy combines the efficacy of ablative lasers and the better side effect profile of non - ablative lasers. Light is emitted in a pixilated fashion creating an array of microscopic columns of thermal injury referred to



(1) Post-traumatic facial scars



(2) Post-traumatic SSG over neck with scar Hypertrophy and contracture

as micro thermal zones.(6) These columns are incorporated with epidermal dermal debris which is then eliminated by Trans epidermal elimination. The surrounding normal tissue repopulates the columns of micro thermal injury producing quick healing and decreasing the downtime. Such fractions are treated over multiple sessions until complete treatment.(6) Scars can also be treated with fractional lasers. They improve the texture, quality and pigmentation of the scars. The 1540 nm erbium glass has been used in the treatment of post traumatic scars.(6) These scars also respond to fractional lasers combined with ablative and non-ablative lasers producing complete to near complete resolution.

Non ablative FP uses near infra-red energy which spares the epidermis.(6) Ablative fractional lasers induce cytokines and growth factors.(1) The ablative fractional erbium: YAG 2940 nm creates micro thermal zones followed by trans epidermal elimination, neocollagenesis and collagen remodeling.



(3) upper lip HTS and Hypopigmentation.

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Some Scar Myths and Facts

Myth: All Scars eventually turn lighter and fade with time.

Fact: Not always. Keloid scars, hypertrophic scars and infected wounds don't fade without special treatment.

Solution: If you have an itchy, raised or red scar, see a dermatologist. Use silicone scar gel treatments on keloid and hypertrophic scars, as they have been proven to reduce the appearance of scars.

Myth: Getting a tan will help your scar blend in better.

Fact: UV rays actually trigger hyperpigmentation in the skin, which makes it even more visible in contrast with the rest of your skin.

Solution: Apply a sunscreen of SPF 30 or higher to protect your scar and keep it from standing out more.

A CENTURY OF CLUB FOOT MANAGED BY PONSETI METHOD !!

Dr. LENIN BABU V

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INTRODUCTION

Club Foot (CTEV) is a complex congenital condition affecting the foot of newborn kids. It occurs in approximately 1 in every 800 live births and around 2.2 million children are affected world wide of which 80% cases occur in developing countries. Boys : girls ratio are 2.5:1. Almost 50% cases are bilateral but most are sporadic occurrences.

DIAGNOSIS

Usually picked up prenatally by ultrasound scan taken around 20th week of gestation. Postnatally by clinical examination. Radiological evaluation is only for resistant cases.

DEFORMITY & GRADING

The deformities in club foot are easily remembered by the mnemonic CAVE -(C – Cavus, A – Adductus, V - Varus, E- Equinus) and is graded according to Pirani score. A maximum score of 6 indicate severe deformity.

PIRANI SCORING SYSTEM			
Parameters	Normal	Moderate	Severe
Midfoot			
Curved lateral border	0	0.5	1
Medial crease	0	0.5	1
Talar Head coverage	0	0.5	1
Hindfoot			
Posterior crease	0	0.5	1
Rigid equinus	0	0.5	1
Empty heel	0	0.5	1

MANAGEMENT

Gone are the days when club feet was corrected by extensive surgeries like posteromedial and posterolateral release along with achilles tendon lengthening and posterior capsulotomy which results in high complication rates like stiffness, infection, neurovascular damage and recurrences. The Ponseti method has revolutionised the way in which club feet are treated in the 21st century.

PONSETI METHOD OF MANIPULATION AND CASTING

Ignacio Ponseti, who is professor at the University of Iowa, developed in 1948 a very simple, effective, minimally invasive and inexpensive method consisting of weekly serial manipulation and plaster casting during the first few weeks of life. Achilles tenotomy was done if needed. Successful correction was achieved in more than 90% of children under 2 years of age in his series. It started getting world wide acceptance after the publication of his papers in 80's & 90's.



Application of Ponseti cast consist of treatment phase and maintenance phase. Treatment phase begins as early as first week of life. 5 to 6 casts are generally required for complete correction. If needed percutaneous Achilles tenotomy was done. Final cast is applied for 3 weeks. During the maintenance phase, the feet is placed in Denis-Brown Splint and is worn for 23 hours each day for first 3 months and during night and nap time until 3 years of age. Non-compliance with the use of splint is the most common cause for recurrence.

Our Experience In KMCH from 2009 to 2019

- 124 cases = 192 foot
- 52 male and 72 females
- Average of 5 casts per baby
- 74% cases had TA tenotomy under GA in theatre
- Average pre-treatment Pirani score was 5.5 and final score was 0.5
- 4 babies had Tibialis Anterior tendon transfer at an average of 4 years
- 13 babies had relapses of which 11 were successfully managed with serial casts and only 2 resistant club feet needed PMSTR with TA lengthening
- We have also treated 17 cases of neglected/syndromic/relapsed club feet(treated elsewhere) with various soft tissue and bony procedures with the oldest being a 52 year old gentleman successfully managed with a triple arthrodesis.

NEW BORN CASE - 1					
	PRE - OP	TENOTOMY	POST - OP		
	NEW BORN CASE - 2				
		PRE - OP	PONSETI TREATMENT	POST - OP	
NEGLECTED CLUB FEET					
8 YEAR OLD BOY CASE - 3					
	PRE-OP NEGLECTED CLUB FEET		POST - OP AFTER PMSTR + TA LENGTHENING + OSTEOTOMY		
	52 Year Old Man CASE - 4				
		PRE - OP NEGLECTED CLUB FEET		POST - OP AFTER TRIPLE ARTHRODESIS	

For more detail :- 0422 4323158, 4323800, leninortho@gmail.com, www.kmchhospitals.com

Simultaneously Three Kidney Transplantations Done By Kidney Sharing: First time in South India

Dr Mangalkumar, *Nephrology*



It is well proven that kidney transplantation transforms lives of patients with end stage kidney failure. The main limiting factor in kidney transplantation is the lack of available organ. Although cadaver kidney donation (Deceased donor) happens in states like Tamilnadu; most patients receive the kidney from close family members only (Live donor kidney transplantation).

In spite of having a family member as a potential kidney donor nearly 20-30% of the patients are not able to undergo transplantation from that particular donor due to two important issues. One is the donor and recipients are not blood group matched. The other reason being, cross match test positive. Cross match test is done before any transplantation to assess whether the recipient's immune system will accept the kidney from that particular donor or not. To have a successful transplantation the cross match test should be negative. If the cross match is positive we should not do transplantation from that particular donor and if we do, the recipient's immune system will attack the transplanted kidney and damage the transplanted kidney.

The traditional approach when there is a blood group mismatch is to give stronger medicines to suppress the immune system, combined with plasma removal (plasmapheresis) and then performing kidney transplantation. Although this approach is successful in majority of the cases, it incurs considerable cost and renders the recipient's prone to a number of complications like bleeding around the time of surgery, infection etc.

Similarly a patient with cross match positive result can undergo transplantation after giving stronger drugs to suppress the immune system and plasma removal. This is called desensitisation. Again this is associated with higher cost, increased rejection, increased bleeding and infectious complications. More importantly the transplanted kidney does not work for long period (Only 50-60% of the kidneys work after 5 years).

Kidney sharing transplantation simply overcomes these two major hurdles. Kidney sharing or swapping means two or more families exchange the kidney with others who otherwise could not donate to their own family member due to either blood group mismatch or cross match positive.

In our case the first family had two sisters and elder was the donor and the younger was the recipient. Both were blood group matched. But the cross match was positive hence we could not proceed with the transplantation.

The second family had sister and brother. The donor was sister and the recipient was her brother. The donor had blood group O (Universal Donor) and the recipient had blood group AB (Universal recipient).

Although the recipient could have received the kidney from his sister because of blood group matching we could not do the transplantation due to the cross match being positive

The third family was husband and wife. The donor was wife and her blood group was A. The recipient was husband and his blood group was O. Although the cross match was negative we could not do the transplantation because of the blood group mismatch.

All these three patients could have received the kidney from their own family member after using stronger medicine to suppress the immune system and Plasmapheresis. But it would have incurred substantial financial burden and more importantly it would have put them at increased risk of complications such as bleeding, infection, rejection and reduced survival of the transplanted kidney.

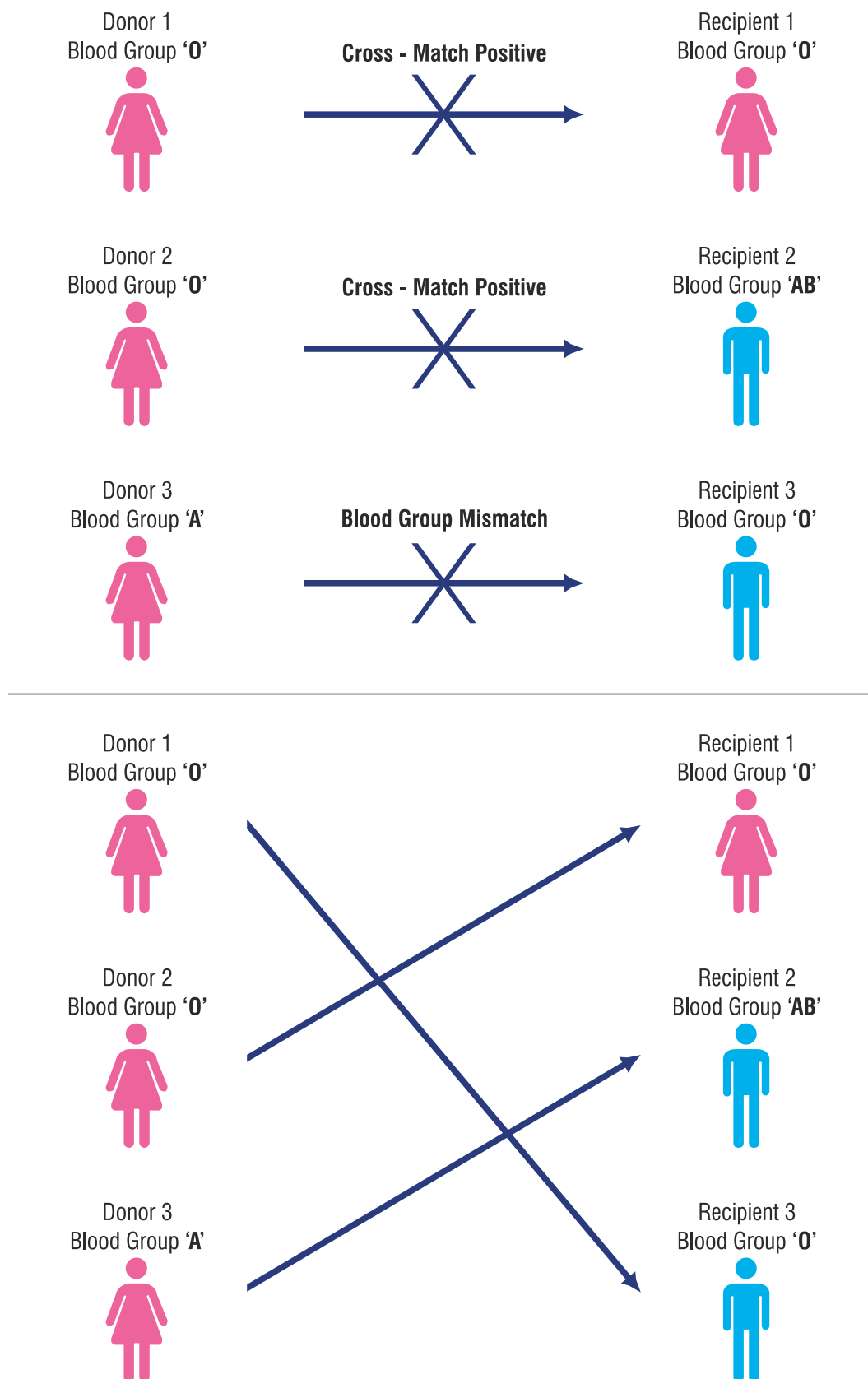
Hence Dr.V.Mangalkumar — kidney & Pancreas transplantation specialist proposed the kidney sharing options. They were suitably matched for their age, kidney function etc. Detailed immunological work up was done with the help of University of Birmingham, UK. After the completion of medical evaluation, necessary regulatory approval was obtained. The surgery was planned for 25.03.2019, under the supervision of nephrologists Dr.V.Mangalkumar had arranged two donor surgery team and two recipient surgery team to operate simultaneously on two donors and two recipients respectively. The surgery was started at 7.00 and two transplantations were completed by 11.30. The third transplantation was done after that. The donors and recipients made good recovery and the donors were discharged on third day and the recipients were discharged after 7 days. They all enjoy normal kidney function.

This type of transplantation involving three donor and three recipient's pair has been done for the first time in South India. This type of kidney sharing between families will make kidney transplantation less costly, safer as well as more accessible. This type for kidney sharing scheme will help those 20-30% patients to undergo transplantation who otherwise would not have had that opportunity.

Congratulating the doctors on this occasion, Dr. Nalla G. Palaniswami, Chairman, KMCH said that organ transplantation is a complex surgical procedure that requires highest level of expertise, care and dedication.

KMCH, the leading multi-specialty hospital in Coimbatore, South India, also excels in performing various transplantation for vital organs such as kidney, heart, pancreas, Liver and bone marrow. Backed by competent team of dedicated professionals and state-of-the-art technology, the hospital has emerged as the most preferred destination for organ transplantation.

3 Person Kidney Transplant Done Via Kidney Sharing Between Donors



Intra Uterine Transfusion - For the First Time in KMCH

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Introduction: Haemolytic disease of the fetus and newborn (HDFN) is a rare condition which is caused by maternal IgG alloantibodies that actively cross the placenta to the fetal circulatory system during gestation and destroy fetal erythroid cells subsequently resulting in fetal anemia and hydrops fetalis. More than 50 red cell antigens have been associated with HDFN. The most prevalent red cell antibodies are

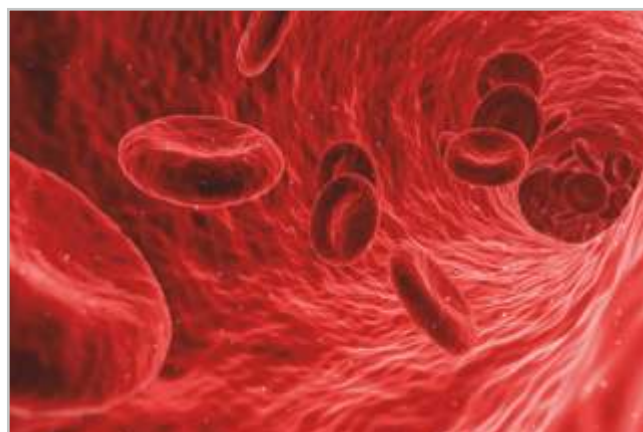
Rh(D,C,c) and Kell. The diagnosis and management of pregnant women with HDFN is based on laboratory and radiographic monitoring. Fetuses with marked anemia may require intervention with intrauterine transfusion (IUT). The survival rates after IUT for red cell alloimmunization exceeds 85% in specialized centers all over the world. The main indication for an IUT is fetal anaemia due to RBC alloimmunisation, but the procedure is also considered in any fetal disease with severe anaemia, including human parvovirus B19 infection, fetomaternal hemorrhage, twin-twin transfusion syndrome, placental/fetal tumors and other rare disease. We present a case of fetal severe anemia associated with red cell alloimmunization (Rh antibodies) successfully treated by IUT.

Case Report: The patient was a 25-year-old woman (G3P2L1) with blood group B RhD negative. She was referred to our hospital in the 27th week of pregnancy for the management of fetal hydrops. The past history revealed a sibling demise (at day 27 post natal) due to jaundice and anemia. She had no previous history of transfusion. Fetal doppler measurement of the peak systolic flow velocity of the fetal middle cerebral artery (MCA-PSV) exceeded 1.5 multiples of median. Signs of fetal anaemia and hydrops were also observed. Mother was evaluated for the presence of red cell antibodies. She was found to have antibodies against D and C antigens (anti-D and anti-C). Anti-D titres were 1:512 (clinically significant, if more than 1:16). Intrauterine transfusion was planned in view of severe anemia due to Rh hemolytic disease.

The first IUT was performed at 27 + 2 weeks of gestational age. The

initial pretransfusion hematocrit was found to be 9.1%. The hematocrit increased to 34.2% after transfusion of 50mL of O Negative, C negative leucodepleted irradiated packed red cells with a hematocrit of 75% into the umbilical vein. The blood group of the fetus was found to be B RhD positive and direct antiglobulin test was 4+. The procedure was uneventful. The second IUT was performed at 31 weeks of gestational age in view of high MCA-PSV with a post transfusion hematocrit of 35%. No procedure-related complications were noted. At 35 + 6 weeks of gestational age, non reassuring NST was observed necessitating an emergency cesarean section. The neonate was given double surface phototherapy and intravenous immunoglobulin for hyperbilirubinemia (indirect bilirubin level 5.73mg/dL). The neonate also required one top-up transfusion as Hb was 7.2g/dL with low reticulocyte count (0.2%). At the time of discharge, the bilirubin levels were within normal limits and the neonate was supplemented with hematinics. At 2 weeks follow-up, the baby was doing well.

Discussion: The incidence of maternal RhD alloimmunization is observed to be 0.1% after the introduction of antenatal and postnatal anti-D prophylaxis for RhD negative women. RhD HDFN is the most common cause of severe HDFN. Earlier, the management options in severe alloimmunized pregnancies included preterm delivery by 32-34 weeks of gestation and neonatal exchange transfusion, termination of pregnancy or permanent sterilization. The introduction of IUT has revolutionized the treatment of fetal anemia by prolonging the pregnancy. Very few centres in India perform IUT. Early fetal monitoring and intervention are the most important measures for optimal perinatal outcome.



KMCH Research Foundation: The Journey from 2015 to Date

Foundation: Born out of Chairman's dream to assess disease burden in our local population, KMCH Research Foundation had a grand inauguration in April 2015 under the auspices of Dr Viswa Mohan Katoch, ex DG ICMR, Prof T Pradeep, Institute Professor IIT Madras, Dr Lazar Mathew Advisor for Medical Sciences & Engineering, Dr Prasada Raju, R &D Advisor to IIT Madras, Dr KrishnaKumar, Deputy Director, Vison Research Foundation, Chennai along with well wishers and colleagues.

Targeted Goal: Within 4 years, we have set the platform for huge epidemiological work on Non-Communicable Diseases in our local communities, especially villages.



Flagship Projects: Our flagship projects encompasses three communities, rural Nallampatti, semi urban Thadagam and urban Kalapatti. Overall, we have screened close to 3000 subjects with blood investigations, carotid intima thickness and fibro scans. For the first time, we have data on the prevalence of NCD risk factors in our local communities and the results are worrying. Diabetes prevalence is 16.2 %, 25 % and 24 % respectively in rural, semi-urban and urban areas respectively. Hypertension is around 34 %, 48% and 37 % respectively with a third of population in all area's dyslipidaemia. This would translate to a huge cardiovascular disease burden if not properly targeted. We have also published papers studying any linkages of heavy metals and pesticides with prevalent diabetes in high impact factor journals. We have adopted these areas for the long term in an effort to improve cardiovascular health in our communities.

Research Links: Our links with other esteemed institutions is growing everyday with associations ranging from IIT Madras, Sastra University, University of Michigan and Dr NGP Group of educational institutions. This has led to published (and to be

published work) in the areas of endocrine disruptors, gestational diabetes, urban rural differences in CVD and diabetes & cancer, to name a few. We have DSIR approval which gives great credibility nationally and enables us to apply for funding from national agencies. We have received confirmation of funding from ICMR for a Rs 6 lac project on epilepsy linking KMCH Research Foundation & Dr NGP Group of Institutions. Projects worth Rs 3 crores have been applied through KMCH Research Foundation this year and we hope that we are successful in at least some of the applications.

Confrences and CME: Our flagship Annual International Conference on Rural Health was conducted recently at our premises on 6th April 2019. Dr Soumya Swaminathan, WHO Scientist, gave an important speech from Geneva highlighting the need for research in rural NCDs. Prof V Mohan, Dr Thomas Alexander and Dr Ajit Mullasiri gave lectures that were extremely insightful and set the platform for more research into diabetes and CVD. Overall, around 400 delegates from different parts of India attended this conference.

As Dr Abdul Kalam said, dreams are not the ones that you get in sleep but the ones that prevents you from going to sleep in the first place. We dream of a time when KMCH Research Foundation leads the way in rural NCD research and intervention that directly translates into better health for people in our local communities. We dream of a time when we lead the way for translational research that incorporates novel treatment methods for various diseases that transform healthcare. We dream of a time when we lead the way in original research and publications from India that elevates KMCH Research Foundation on the international research map. Dreams in research cannot be achieved by individuals, only teams can make the "impossible possible". We sincerely request all of you readers to join hands with us by doing healthcare research that is immensely beneficial to our local communities. If you have a bright idea or a proposal, kindly drop into KMCH Research Foundation office situated at the 2nd Floor (above canteen) or contact Dr Mohanraj at Ext 4355 or mail us at kmchrf@gmail.com At the end of the day, TEAM stands for "Together Everyone Achieves More."

Prevalence of Hypertension and Associated Risk Factors in Sub-Urban area of Tamil Nadu in India

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Dr Thomas Alexander, Dr Nalla G Palaniswami



Abstract Background: Hypertension is one of the prime risk factors for cardiovascular mortality in India. Hypertension (HTN) prevalence data is available in only urban and rural population but not in sub-urban areas. Therefore, this study was conducted to estimate the prevalence of HTN and associated factors in Sub-urban Tamil Nadu, India.

Methods: In this KMCH-NCD study, we enrolled 20 years adults' population residing in Thadagam (sub-urban) in Coimbatore district, Tamil Nadu, India. All participants were interviewed with a detailed questionnaire, had anthropometric measurements including height, weight and blood pressure. Prevalence of hypertension (self-reported hypertension or systolic blood pressure 140 mm Hg, diastolic blood pressure 90 mm Hg) was estimated. Multivariable logistic regression analysis was used to identify factors influencing hypertension rates.

Results: A total of 1030 participants were involved in this study. The prevalence of hypertension was 47.1% in this area. In subgroup analysis, the prevalence of hypertension was 53.5 % for men and 41.7% for women. Significant risk factors for hypertension included age, sex, smoking, waist circumference, diabetes, atherosclerosis, triglycerides and high-density lipoproteins.

Conclusions: This study identified an increased risk for hypertension in sub-urban region of Tamil Nadu. Around half of the study participants were hypertensive, suggesting that sub-urban hypertension screening and treatment guidelines should receive greater attention.



Introduction: Hypertension is one of the prime risk factors for cardiovascular mortality in India. The prevalent cases of cardiovascular diseases in India have been increased from 25.7 million in 1990 to 54.5 million in 2016 ¹. Among the major metabolic risk factors that contributed to mortality due to non-communicable diseases, the leading ones of high bodymass index (BMI), hypertension, diabetes and high total cholesterol have been increased from 1990 to 2016 in India ².

Emerging trend of hypertension (HTN) is observed in India, as by 2025, HTN prevalence is projected to be 22.9% and 23.6% for Indian men and women, respectively, which is increased from 20.6% of men and 20.9% of women in 2005 ³. However, in 2008, 33.2% of men and 31.7% of women in India were suffering from raised BP, as estimated by WHO ⁴ (WHO 2011). Recent studies from ICMR-INDIAB study in India have shown the prevalence of HTN to be 31.5% in urban dwellers and 26.2% in rural dwellers of Tamil Nadu ⁵. Some studies on hypertension have been conducted in rural and urban India to estimate its prevalence, but until now none has been carried out in the community in sub-urban areas. Our study aimed to estimate the prevalence and identify the risk factors of hypertension among adults aged 20 years and older in Thadagam at Coimbatore district, the sub-urban area located at 15 km from the district headquarters.

Methods: In this KMCH-NCD study, we enrolled 20 years adults' population residing in Thadagam (sub-urban) in Coimbatore district, Tamil Nadu, India. All participants were interviewed a detailed questionnaire, had anthropometric measurements including height, weight and blood pressure. Blood sample was



Figure: KMCH-NCD Study program at Thadagam, Coimbatore (D.t), Tamil Nadu

taken for measuring HbA1c, total cholesterol, triglycerides, hemoglobin, serum creatinine, high-density lipoproteins, and low-density lipoproteins. Prevalence of hypertension (self-report of hypertension or systolic blood pressure ≥ 140 mm Hg, diastolic blood pressure ≥ 90 mm Hg) was estimated. Multivariable logistic regression analysis was used to identify factors influencing hypertension rates.

Results: In sub-urban area, 1030 persons participated in this

study. Among these participants, 45.5 % were males and 54.5% were females. The age distribution of the study population is as follows: 48.5% of the study population was between 40 and 60 years of age, 26.9% were between 20 and 40 years, and 24.6% were more than 60 years. The prevalence of hypertension in this population was 47.1%. Among these hypertensive participants, 24.4% were males and 22.7% were females (Table 1). Out of these 485 hypertensive subjects, previous history of HTN was given by 210 (43.3%) of subjects.



The Story of SGLT2 Inhibitors - From Apple Tree to Sweet Pee

Dr Shankar Dhandapani, *Endocrinology & Diabetology*

Introduction: Diabetes mellitus is a chronic condition associated with the metabolic impairment of insulin actions, leading to the development of life-threatening complications. Current treatments for type 2 diabetes have centered on increasing insulin availability, improving sensitivity to insulin, delaying the delivery and absorption of carbohydrate from the gastrointestinal tract. However their undesirable adverse effects, such as hypoglycemia, weight gain, and hepato-renal toxicity, have increased demand for the discovery of novel, safer anti diabetic drugs.

Harnessing the Kidneys to Treat Diabetes: For centuries, the kidney has been considered primarily an organ of elimination and a regulator of salt and ion balance. It is now recognized as an important player in the arena of glucose regulation. Healthy kidneys can reabsorb up to 180 grams of glucose per day.

If a medication could block the renal re-absorption of glucose, that might be an excellent solution to treat high blood glucose levels. In fact, a condition called familial renal glucosuria already demonstrated this in nature. This made the researchers think about a new molecule that would block the glucose reabsorption in the kidneys, as a treatment for hyperglycaemia.

History of SGLT-i: Phlorizin, a dihydrochalcone, isolated from the bark of apple trees in 1835 was used for the treatment of fevers, infectious diseases, and malaria, due to its similarities with chinchona. Approximately 50 years later, it was found out that phlorizin inhibits renal glucose re-absorption and increases urinary glucose excretion.

Further research in 1970s demonstrated the role of 2 new group of proteins called SGLT-1 and SGLT-2, present in the renal tubules, which actually help the kidneys reabsorb the filtered glucose load. Phlorizin tend to block their action and was considered a promising agent for diabetes. However due to some critical drawbacks such as low therapeutic selectivity, GI side-effects and poor oral bio-availability, it could not be used for the treatment of diabetes. Since 1990s, extensive research in this area led to development of novel phlorizin-based analogs with improved bioavailability and stability, as well as SGLT2 selectivity such as canagliflozin, dapagliflozin and empagliflozin to name a few, which revolutionized the way we manage diabetes.

Therapeutic Uses: SGLT2 inhibitors promote the renal excretion of glucose and thereby lower elevated blood glucose levels with HbA1C reduction up to 1.2%. The ability to lower blood glucose levels is limited by the filtered load of glucose and the osmotic diuresis caused by this therapy.

In addition to glycaemic control, they have other positive benefits including weight loss, reduction in systolic blood pressure, significant reduction in cardiovascular death in patients with cardiovascular disease and reduction in the progression of albuminuria and nephropathy.

Side effects include increased risk of UTI and genital mycotic infections, and rarely euglycaemic diabetic ketoacidosis.

Better Treatments Through Research: The story of SGLT inhibitor is a wonderful example of how research in one area can lead to advances in another.

Prevalence and Determinants of Hypertension and Diabetes Mellitus in an Urban Area of Coimbatore

Dr S Jeevithan, Associate professor in Community Medicine, KMCHHSR, Coimbatore



Introduction: Hypertension & Diabetes mellitus are major and growing public health problems, especially in developing nations like India. Hypertension causes 7.5 million deaths globally every year which is about 12.8% of total annual deaths. India is no stranger to this problem and has a prevalence ranging from 17% to 21% in all states which may be a lot more inflated if the entire population is screened. Globally, an estimated 382 million people have diabetes, with type 2 diabetes making up about 90% of the cases. In 2016 diabetes resulted in 1.6 million deaths per year worldwide, making it the seventh leading cause of death. India has the second highest number of diabetics in the world next only to China.

In this rate, India is poised to become a non-communicable disease capital of the world and as a medical professional it is our moral and ethical obligation to provide knowledge, awareness, and comprehensive (preventive, therapeutic and rehabilitative) treatment to the community to sustain and reverse the epidemic.

Aim:

- 1) To find out the prevalence of Hypertension and Diabetes in an urban population.
- 2) To find out the associated risk factors for Hypertension and Diabetes in an urban population.

Materials and Methods: A Community based cross-sectional study was conducted in Sundarapuram, Coimbatore. Out of the 13 wards, 6 wards were selected for the study using Simple Random Sampling (lottery method). A sample of 299 subjects above 30 years of age selected from 6 wards of the field practice area was screened using convenient sampling.

The Health inspector and medical social workers visited the wards on the previous day of the study and sensitised the public about the screening. The questionnaire consisted of the socio-demographic data, anthropometry, dietary practices, physical activity, smoking and alcohol history, knowledge, attitude & practice towards diabetes mellitus and hypertension.

Aneroid sphygmomanometer was used to measure blood pressure after calibration with a mercury manometer. A standardized Glucometer was used to measure random blood sugar.

Classification of Hypertension and Diabetes mellitus was done as per the latest JNC(Joint National Committee) 8 and ADA (American Diabetes Association) guidelines respectively. On measuring BP, those who were found to have SBP > 140 mmHg and DBP > 90 mmHg on 2 separate occasions 15 mins apart were considered as Hypertensives. Subjects with Random Blood Sugar > 200 mg/dl were considered as Diabetics. Waist circumference above 90 cm in males and above 80 cm in females was considered as abdominal obesity as per WHO guidelines.

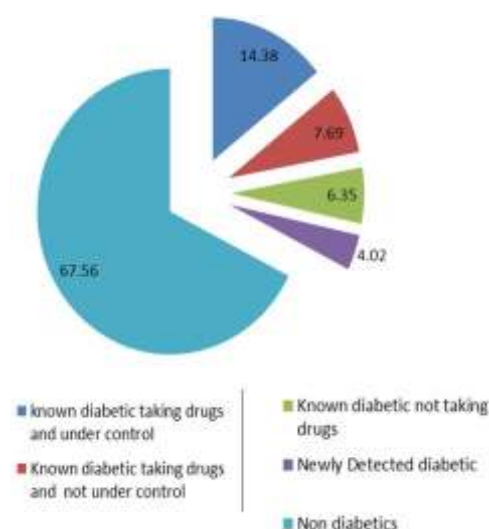


Figure-1: Distribution of study population according to their current readings of Random sugar levels and disease status.

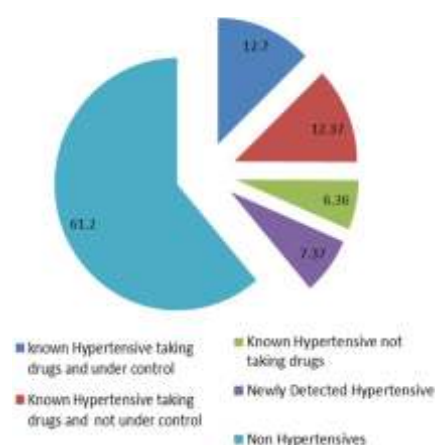


Figure-2: Distribution of study population according to their current Blood Pressure readings and disease status.

Result:

Table-1 : Association of study population according to their age group and disease status

Age Group	Overall Frequency No (%)	Diabetics No (%)	P-value	Hypertensive No (%)	P-value
<20	4	0	0.008	0	0.004
21 - 40	46	3		5	
41 - 60	147	40		52	
61 - 80	90	46		51	
>80	12	8		8	
Total	299	97		116	

Table-2 : Classification of Study subjects according to Prevalence of Various risk factors of Diabetes Mellitus and Hypertension

Risk Factor	Overall Prevalence (n=299) No (%)	Diabetes Mellitus (n=97) No (%)	Hypertension No (%)
Sedentary Life Style	180 (60.2)	67 (68.11)	79 (68.1)
Physical Activity	105 (35.12)	25 (25.77)	30 (25.6)
Alcohol Consumption > Thrice a Week	94 (31.43)	45 (46.4)	56 (48.28)
Smoking	68 (22.74)	26 (26.8)	39 (33.62)
BMI >25	87 (29.09)	36 (37.11)	39 (33.62)
Abdominal Obesity	148 (49.45)	81 (83.5)	95 (81.9)

Discussion: Out of the 299 subjects screened, 131 were males (44%) and 168 were females (56%). The prevalence of Diabetes mellitus was 32.44% and prevalence of Hypertension was 38.8% (Table 1). Among those diagnosed, 12.37% Diabetics and 18.96% Hypertensive were newly detected cases along with a significant number of prediabetes (6.02%) and prehypertensive (18%).

Nearly 70% lead a sedentary lifestyle and only 35% of study population practice any kind of physical activity regularly (Table 2). 43% of the known diabetics did not have optimal glycaemic control (Fig 1). Of the known hypertensive, 48.27% of them were found to have uncontrolled high blood pressure (Fig 2). A remarkably high prevalence of abdominal obesity (49%) was observed in the study. Increasing age (Table 1), sedentary lifestyle lack of physical activity, alcohol consumption more than three times a week, smoking, Increased BMI and abdominal obesity were found to be significantly ($p < 0.05$) associated with high blood pressure and blood sugar levels.

Regular screening programs and health education programs must be organised to control the alarming epidemic of Diabetes and Hypertension. Periodic health education and awareness activities

regarding importance of physical activity, avoidance of smoking and alcohol and knowledge about early signs and symptoms needs to be imparted to the study population and the subsequent positive attitudes and practices adopted by the community should be reassessed by periodic studies carried out in the same population in future.

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Incidence of Occult Invasion in Sternothyroid Muscle by Differentiated Thyroid Cancer (Surgical Technique Outcome Analysis)



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Thyroid cancer is one of the commonest cancers to occur in the human body. It commonly presents as a painless lump in the neck. Diagnosis is made by ultrasound and fine needle biopsy. Surgical removal is the main treatment and cure can be expected in more than 95% of patients.

During surgery a layer of muscles called strap muscles that envelop the gland anteriorly is typically not removed. In a research project mentored by Dr. M. Dhiwakar, in which the departments of otolaryngology, radiology and pathology collaborated, a series of cases of differentiated thyroid cancer limited to the thyroid gland was analysed.

It was found that the strap muscle was microscopically and unexpectedly invaded in 16% of cases. Removal of the strap muscle during surgery was estimated to reduce the positive margin rate four times. Postoperative voice was not compromised in such patients.

Thus, the authors make the case for routine removal of the strap muscle in cancer that is seemingly limited to the thyroid gland. These findings have been recently published in the European Archives of Otorhinolaryngology, an international, peer reviewed, Pubmed indexed journal.

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HEAD AND NECK



Occult Invasion of Sternothyroid Muscle by Differentiated Thyroid Cancer

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Abstract Purpose: To determine the incidence of occult invasion of sternothyroid by differentiated thyroid cancer (DTC) and identify clinicopathological features associated with the same.

Methods: Retrospective study of a consecutive series of DTC patients undergoing surgery, with preoperative ultrasound showing no evidence of strap muscle invasion. All had en bloc excision of sternothyroid muscle along with thyroidectomy. Incidence of microscopic invasion of sternothyroid and clinicopathologic features associated with the same, were studied.

Results: A total of 76 patients with DTC (2010–2014) were identified, of whom 62 met the inclusion criteria and were included in this study. Of these, 22 (36%) had no extrathyroidal extension (ETE), 30 (48%) had minimal ETE without sternothyroid invasion and 10 (16%) had minimal ETE with microscopic sternothyroid invasion. The mean tumor sizes of the three sub-groups were 1.9, 3.1 and 4.9 cm, respectively, with a significant difference between no ETE and sternothyroid invaded sub-groups ($p = 0.03$). Out of the 40 cases with minimal ETE, 3 (7.5%) had positive tumor microscopic margin. Retaining sternothyroid in situ would have theoretically increased this proportion to 27.5%. Over a median follow-up of 52 months, 58 (94%) patients remained structurally disease free, with only 1 local recurrence.

Conclusion: Occult invasion of sternothyroid muscle occurred in 16% of DTC in this series. Excision of the muscle en bloc with thyroidectomy, particularly in larger tumors, may confer benefit in accurately staging the disease, encompassing occult ETE and achieving clear microscopic margins.

Study on Prevalence of Liver Disease in Rural South India

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Introduction: Liver disease worldwide is a major source of morbidity and mortality and is the only chronic disease with increasing mortality. Liver disease has a long latent course and identifying early, not only prevents fibrosis/cirrhosis but as well reverses fibrosis on treating underlying cause. Estimated histological liver cirrhosis prevalence of 1% makes it an apt disease to screen for, in view of it being the only chronic disease with increasing mortality.

Liver function tests (LFTs) are inexpensive tests often done to screen for liver diseases and is a good predictor of not only liver disease mortality but also other cause mortality. Since LFT's are neither specific nor indicative of any particular disease, the extruded probabilities of various diseases when abnormal, inevitably leads to further testing. The important causes for liver diseases are viral hepatitis B/C, alcohol and fatty liver disease, but other causes, although low in prevalence, needs excluding, either by extensive testing or focused testing at a price (\$448 vs. \$502/patient). The cost implications of either strategy along with either of them detecting only 55% (of them 48% NAFLD, 46% ALD, rest only 6%) , makes one propose screening for liver diseases only if either one of the 3 analytes ALT/ALP/GGT alone being abnormal.

NAFLD has been established as the most common cause of abnormal LFTs both in the western and eastern population. Liver is centrally positioned in the metabolic syndrome with NAFLD considered as consequence of mechanism driven by other components of metabolic syndrome. However, liver may also vice versa drive diabetes mellitus or cardiovascular disease making one wonder whether NAFLD is a multisystem disease . Our pilot data suggest underestimate of the burden of metabolic syndrome and involvement of few environmental factors in development of metabolic syndrome making us wonder whether same factors could contribute to higher incidence of fibrosis/NAFLD in Indian sub-continent.

Early screening/detection for common liver diseases/fibrosis and treatment in earlier stages can contribute to decrease in disease burden of not only liver diseases but also other diseases . Although causes for liver diseases could be established through blood tests and history, liver biopsy remains the best to diagnose fibrosis/cirrhosis but its invasive nature makes it infeasible for screening population. Scientifically validated non-invasive methods (Fibroscan) for the assessment of fibrosis is a pragmatically attractive and feasible strategy for liver fibrosis/cirrhosis screening and the fact that fibrosis is the only reliable factor associated with morbidity and mortality in NAFLD making it a useful tool for community screening on prevalence

The need for study on liver disease in India: Epidemiological data in India on prevalence of abnormal LFTs, their natural course and cirrhosis is generally few. Fatty liver disease is increasing and the incidence of fatty liver disease is higher in people with diabetes. In view of the increasing liver disease morbidity and mortality worldwide, there is an

imminent need for a population based study in India to look at prevalence of abnormal LFTs, aetiologies for abnormal LFT's and prevalence of liver fibrosis/cirrhosis, and also to look at association with other metabolic diseases. The non-invasive screening for the prevalence of liver fibrosis by Fibroscan has revolutionised and enabled us to embark a population based study in a cost effective manner.

Aim: The primary aims were to look at aetiology when LFT's are abnormal; relationship of abnormal LFT's with fibrosis/steatosis; clinical features of patient's with abnormal LFTs and fibrosis/steatosis.

The secondary aims were to evaluate the association of abnormal LFTs with other NCDs; association of fibrosis +/- steatosis and vice versa with other NCD's.

The study was a cross-sectional, community-based survey of either sex aged ≥ 20 and ≤ 75 years to assess the burden of non-communicable diseases including liver disease. The study covered the rural (Nallampatti, Erode District) area in Tamil Nadu, India done through a comprehensive screening of the adult population of Nallampatti through purposive sampling technique.

Results: We achieved a total enrolment of 907 subjects through purposive sampling technique with no drop outs. The total number of subjects were 907 with a male: female ratio of 48.1% : 51.9%. Valid Fibroscan readings were achieved in 99.3% (901/907) in keeping with defined standards.

Table 2: Results of screening for Non communicable diseases

	No.of Subjects	%
Total Subject	907	
Male	436	48.1
Female	471	51.9
Known Diabetes	113	12.5
Newly Diagnosed	24	2.6
Total Diabetes	137	15.1
Pre Diabetes (6.0 - 6.4)	146	16.1
Known Hypertension	150	16.5
Newly Diagnosed	76	8.4
Total Hypertension	226	24.9
Total Cholesterol ³ 200	265	29.2
HDL < 40 for Male	250	27.6
HDL < 50 for Female	308	34
LDL ³ 130	321	35.4
Generalized BMI ³ 25	366	40.4

We collected alcohol use data only in males, in whom 26.3% admitted to drinking. Since exact alcohol consumption may not be accurate in purposive sampling, data were not collected. The characteristics of the subjects with data on NCD's are depicted in table 2.

Discussion: Our study is the first in Indian context to look at the prevalence of abnormal LFT's, analyzing the aetiological causes of abnormal LFT's, prevalence of liver fibrosis and their association with features of metabolic syndrome in a rural setting. The prevalence of diabetes, pre diabetes, hypertension, dyslipidaemia and obesity in our study is higher than in other Indian studies. We are unsure whether we using HBA1c and other studies using oral glucose tolerance test as criteria contributed to the difference in Diabetes, although both of them are internationally accepted definitions. We certainly do feel that in view of our study population being predominantly of farming background, heavy metals and insecticides could have contributed to higher incidence of diabetes and components of metabolic syndrome.

Alcohol Consumption Data: Alcohol consumption among women is considered a taboo in rural India ,henceforth our questionnaire excluded females on alcohol consumption respecting cultural values. Alcohol consumption among males in our population was 26.3% (115/436) with lancet data on global prevalence estimating alcohol consumption among males in India at 20-39.9%. Similar estimates have been found in rural India although some have estimated it lower .

Biochemical Liver Screening Analysis: The prevalence of abnormal LFT's in our study is 7.2% which is very much in keeping with published

data of around 7.8%. India generally has low prevalence of auto-immune liver disease, primary biliary cholangitis, haemochromatosis and there are no community-based incidence and prevalence studies on Wilson's disease. Hence it isn't surprising that our liver screen did not yield any positives for them. Prevalence of hepatitis B virus (HBV) was 0.1% and we did not find any hepatitis C virus (HCV) in our study.

There was a strong correlation between fibrosis and metabolic syndrome with it being statistically significant in subjects with >F2 stage of fibrosis (Table 5).

In view of the alcohol consumption being 26.3% (males alone), we looked at whether alcohol consumption was a confounding factor leading to fibrosis. It was clear that alcohol consumption was an independent factor and in our population there was no increased risk of fibrosis in people who drank alcohol and also had metabolic syndrome (Table 6).

This is low compared to WHO estimate rate of 2% HBV prevalence and 0.5% HCV prevalence in India. A recent metanalysis on viral hepatitis prevalence in India showed studies across India had heterogeneity with regards to testing strata, exposure to risk factors, different sample sizes, different test kits, etc. We are unsure whether testing strata – whole blood vs. serum; different sample size-ours being small compared to other studies; different test kits – card test vs. immune assay, contributed to lower prevalence in our study. There were different prevalence rate in different districts of Tamilnadu and our study

Table 3: Liver screening results

Population	907	
Abnormal LFT	66	7.2%
Alcohol (Males only)	115 (436)	26.3%
Viral Hepatitis	1 (HepB)	0.1%
Liver Screen Positive	None	

Table 4: Fibroscan results

Total Valid Fibroscan	901	99.3%
No Significant Fibrosis < F2 (< 6.5 Kpa)	814	90%
F2 Fibrosis (6.5 - 9.4 Kpa)	67	7%
> FA Fibrosis (> 9.4 Kpa)	20	2.2%
Cirrhosis (> 12 Kpa)	7	0.8%

Table 5: Relation between Fibrosis and Metabolic syndrome

Fibrosis	Total Screened Subjects	Metabolic Syndrome
	No. of subjects	No. of subjects
	(Total Valid Fibroscan 901)	91 (10%)
<F2	814	51 (6.2%)
F2	67	16 (23.9%) p< 0.05
F3	13	4 (31%) p< 0.05
F4	7	2 (28.6%) p< 0.05

Table 6: Alcohol or Metabolic syndrome as risk factor in Alcohol consuming subjects

Fibrosis Score	Alcohol Δ & Metabolic Syndrome	Alcohol Δ without Metabolic Syndrome	Total Alcohol Δ
F0 - F1	17	84	
F2	0	10	Alcohol appears to be the cause P< 0.05
F3	0	2	
F4	0	2	
	17	98	115

population district had the lowest prevalence rates of 0.27% (HBV) and 0.09% (HCV) making one wonder whether adoption of universal HBV immunization and improved living standards contributed to our low prevalence.

Fibroscan Data: We were able to attain a success rate of 99% in obtaining Fibroscan readings and it is certainly due to the operator experience. Fibroscan results in our study subjects showed no fibrosis in 90%, F2-F4 fibrosis of 9.2%, F4 fibrosis in 0.8%. Similar results of < F2 fibrosis -92.5%, > F2 < F4 fibrosis - 6.7%, and F4 fibrosis of 0.8% was obtained in a similar cohort of community screening [42] using Fibroscan. Minor differences was due to differences in classification of fibrosis (< F2 fibrosis vs. no fibrosis, F2-F4 fibrosis vs. > F2 < F4 fibrosis). Our F4 fibrosis rates of 0.8% has been validated and it is accepted as the prevalence rate of significant fibrosis.

Similar to our study results, increased Fibroscan values in patients with metabolic syndrome (MS) and higher rates of fibrosis in patients with diabetes has been observed. Several studies have shown that MS increased Fibroscan values in apparently healthy individuals but not in a subgroup of individuals with probable advanced fibrosis or cirrhosis. Although we had not biopsied but we certainly do feel that advanced fibrosis seen in our cohort is attributable to metabolic syndrome which has been validated by liver biopsy in a previous Indian study. Higher rates of fibrosis observed in drinkers in our study is well validated and our study cohort did not have high transaminases in drinkers, hence we believe that alcohol consumption was an independent risk factor for

fibrosis. The combination of alcohol and MS increasing the risk of fibrosis was not seen in our cohort and we are unsure about the exact reasons behind it.

Our study clearly puts the following things in perspective to the policy makers and health care workers taking in to account the cost considerations in a developing economy like India: viral hepatitis screening should be concentrated in endemic areas; alcohol and fatty liver disease with metabolic syndrome are the main contributors to liver fibrosis in non-viral endemic areas; screening for aetiology of liver diseases is probably apt in settings of transplant centres rather than community; Fibroscan screening of liver fibrosis is a pragmatic cost effective tool for screening. We certainly do feel that concerted efforts are needed both from policy makers and health carer workers given the increasing trend of alcohol consumption and obesity and policy decisions similar to western world are taken to tackle it before it becomes untenable.

Conclusions: Nearly 8% do have abnormal LFT's and aetiological screening in a community setting is not of much value. Approximately 1% have cirrhosis with high prevalence of fibrosis seen in people with metabolic syndrome. Since there is no correlation between abnormal LFT's and fibrosis, presence of normal LFT's may falsely reassure drinkers and people with metabolic syndrome. Fibroscan screening is a pragmatic cost effective tool for liver fibrosis screening in community and should be considered in drinkers and people with metabolic syndrome.

Case 1: Case of Aortic Dissection with Aortic Valve Repair

Dr Prashanth Vaijyanath

Mr. Solomon Siameto, a 62 years old gentleman from Kenya, was referred to KMCH in March 2019. He complained of breathlessness and swelling of both legs for last few months.

On evaluation, he was found to have an aortic artery was torn (Aortic dissection) and ballooned out to an extent of 10cm (which should normally be only 03.00cm). Apart from that, one of his heart valve (The aortic valve) was badly leaking leading on to heart failure.

He was carefully evaluated and a detailed counseling was done. Surgical correction is the only available treatment for this condition. He was subjected to a major surgery in which his damaged blood vessel was replaced by an artificial tube made of a fabric and his heart valve was repaired. Aortic valve repair procedure are technically challenging and only few are experts.

His postoperative course was uneventful and he was discharged after 5 days. Normally these kinds of leaking valves are only replaced by artificial valves and once it is replaced patients have to be on close follow up and they may have to take blood thinner medicines throughout the life. But in his case the valve was repaired in which case his quality of life is going to be definitely better.

KMCH is equipped with one of the best cardio - thoracic surgical team under Dr. Prashanth Vaijyanath that such cutting - edge procedures are done routinely.



Case 2: Successful Open Excision of a Large Pheochromocytoma

Dr Subbiah Chelliah, Dr T Satheesh Kumar, Dr Neha T.G, Dr Gautham S.V



Introduction:

Pheochromocytoma is a functional catecholamine secreting tumour of chromaffin tissue derived from neural crest. Tumours are called

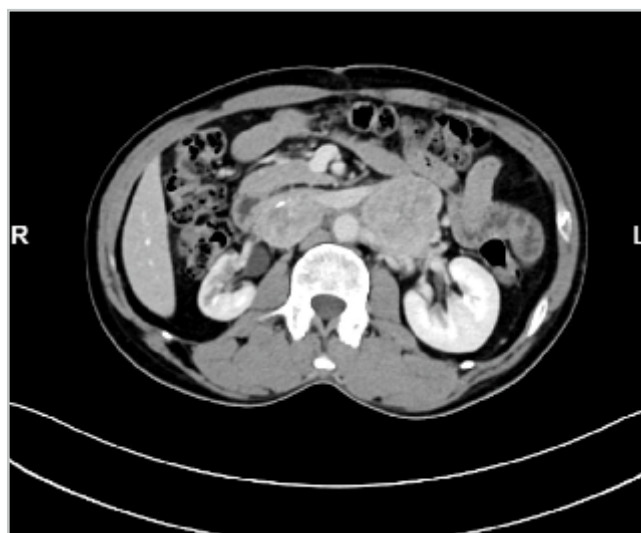
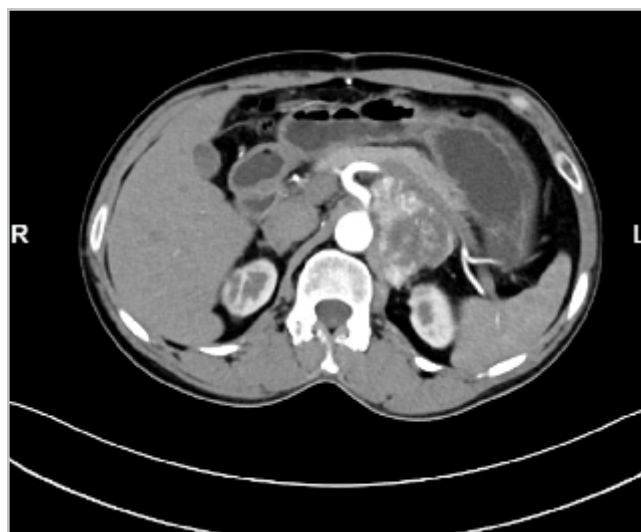
pheochromocytoma arising from adrenal medulla or paragangliomas when they are located extra-adrenally in sympathetic ganglia. The classical triad consists of episodic headache, diaphoresis and palpitations. These have syndromic association and can occur as a part of MEN 2A syndrome (Sipple's syndrome) or MEN2B syndrome (Gordons syndrome)

Pathophysiology involves tumour predominantly secreting epinephrine and nor-epinephrine. Malignant tumours may secrete dopamine also. Diagnosis is usually by measurement of urinary and plasma fractionated metanephrines and catecholamines, CT with or without I131-labeled MIBG and MRI. Treatment is surgical resection after proper optimization of haemodynamic parameters.

Huge surges in BP are seen during surgery - especially during tumour handling. This can result in intracranial bleeding and cardiac failure if not controlled swiftly. The surgery is hence done only by experienced surgeons and anaesthesiologists in few centres equipped with all facilities.

Presentation: A 45 year old male, came to the hospital with complain of left sided abdominal pain of 1 year duration and history of weight loss. Patient was diabetic since age 14 and was on regular treatment. He was diagnosed with left sided pheochromocytoma a year back in an outside hospital where a laparotomy was done and abandoned due to uncontrolled hypertension. Patient came to KMCH for further treatment.

On examination, patient was normal except for hypertension and a generalized tenderness in abdomen. Investigations revealed urinary VMA and metanephrine levels elevated. Imaging study of CT showed a mass of 6.4x5.3x7.1cm arising from left adrenal body, closely abutting left supra-renal aorta, celiac artery, SMA, proximal body of pancreas, splenic vein and indenting the left crura of diaphragm. Another mass was seen in retrocaval region measuring 4.1x2.5cm abutting right renal artery. Suggestive of left side pheochromocytoma and right side paraganglioma.



Treatment Plan: Treatment plan was laparotomy and bilateral retroperitoneal tumour excision. Patient was assessed by endocrinologist Dr. Krishnan Swaminathan and cardiologist Dr. Suresh Kumar for glycemic control and hypertension. Patient was started on α -adrenergic blocker Prazosin for 12 days for the control of persistent hypertension.

After 12 days, when patient was stabilised and electively posted. He was reviewed by the anaesthesia team and detailed discussion on mode of anaesthesia, surgery and related complications with patient and relatives was done. Informed written consent was obtained. Two units of blood were reserved. Premedication with mild sedative and proton pump inhibitor was given previous night and 2hrs prior to surgery. General anaesthesia with epidural and invasive BP, CVP

monitoring was planned. Patient was received and observed in preoperative receiving section with simultaneous checking of pre-surgical checklist.

Surgical Course: Under aseptic precautions, an epidural catheter was placed at T12-L1 level. Midazolam was given IV and an arterial cannula was placed under ultrasound guidance in left radial artery. A 14G IV cannula was secured in left forearm. Pre-induction heart rate was 76 bpm and BP was 138/92 mmHg.

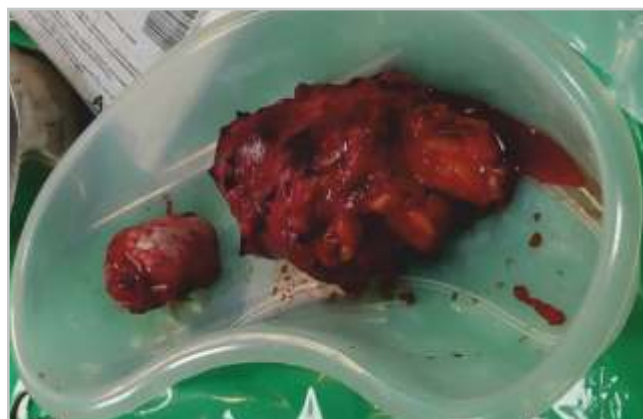
A slow IV bolus of Magnesium followed by an infusion was started. Patient was then anaesthetised with Propofol, Fentanyl and Cis-atracurium and his trachea intubated with an endotracheal tube very gently. A central line was secured and anaesthesia maintained with oxygen, nitrous oxide and sevoflurane.

BP fluctuations were managed with titrated doses of Diltiazem, Glyceryl trinitrate, metoprolol and propofol boluses. Analgesia was provided by the epidural infusion of Ropivacaine with fentanyl. Intraoperative blood transfusion of 2 units of packed red cells were given after assessing the blood loss.

The procedure lasted for 6hrs, during which several surges in blood pressure were seen. The highest recorded BP was 266/119mmHg during tumour handling despite the huge amount of antihypertensives used.

Surgery included resection of left adrenal mass from adjacent adherent structures which involved left kidney, aorta, left hemidiaphragm, spleen, left psoas muscle and inferior mesenteric vessels. The left sided tumour was found encroaching the renal vessels, from which it was resected and the tumour was excised. Right sided paraganglioma was discovered inferior to right renal hilus, posterior to IVC and adherent to right renal vein and IVC. The dense adhesions were taken out and retro-caval dissection was done to remove the tumour in toto. Right adrenal was visualised, found normal and left undisturbed.

Intra-operatively, after resection of tumour, BP dropped to lower side which was supported by a Nor-adrenaline infusion and IV fluids. After abdominal closure, patient was extubated and shifted to the post-operative care unit and later to the ICU care for overnight observation. Patient required minimal Nor-adrenaline support for one day. The Epidural infusion was gradually reduced



and removed. Patient was comfortable, haemodynamically stable and painfree.

Post Op Course: Postoperative observation of BP proved complete resection of tumour. Patient was reviewed everyday and discharged in stable conditions on the 6th post-operative day.

Discussion: This neuro-endocrine tumour has the most unpredictable and fluctuating clinical course during anaesthesia and surgical resection. The preoperative preparation of the patient with pharmacological interventions and cardiovascular optimization are the important aspects before planning surgical resection.

Early involvement of Endocrinologist, Surgeon, Cardiologist and Anaesthesiologist is required with good optimization of the patient preoperatively, and close control of haemodynamics perioperatively for a successful outcome of pheochromocytoma excision.

Case 3: Cardiac Capillary Hemangioma - A Case Report

Devender Singh, Shegu Gilbert, Sivakumar MK, Subramaniam R, Sangita Sharma Metha



A 48 years old female was admitted with history of breathlessness since 3 months. She had lost 7 kg in the last 6 months. She had no comorbidities. ECHO revealed large pericardial effusion with mild pulmonary artery hypertension. She underwent pericardiocentesis which drained 650 ml of straw colored fluid. The pericardial fluid examination revealed, exudative fluid. LDH and ADA were within normal limits. The cytological examination of fluid showed mesothelial cells and inflammatory cells in hemorrhagic background. ASO, CRP and gene xpert for tuberculosis were negative. ANA, anti dsDNA was also found to be negative. Since all the tests were negative she was labeled as idiopathic pericardial effusion and empirical ATT was started. After one month, she again developed moderate pericardial effusion. She was also put on oral corticosteroids by the physician. Repeated pericardial tapping was done. She was referred to us after completion of 6 months of ATT with recurrent pericardial effusion with an advise for pericardial window surgery. CT thorax revealed moderate pericardial effusion and mediastinal mass attached to the main pulmonary artery (FIG 1). PET scan showed moderately hypermetabolic exophytic mass anterior to the left ventricle and no other evidence of metabolic disease elsewhere.

In view of the presence of mediastinal mass, we decided to do median sternotomy, instead of left anterior thoracotomy as routine. The patient underwent median sternotomy, Pericardial window surgery and biopsy of the mass. We found highly vascular mass attached to the right ventricle immediately adjacent to the pulmonary artery and extending to the posterior wall of right ventricle (FIG 2). Since the mass was a part of the right ventricular wall it was deemed as non resectable, hence a very careful biopsy was done after taking pledged prolene sutures on the right ventricular wall to prevent torrential bleeding. Post operatively the patient did well and is currently asymptomatic with no recurrence of any pleural effusion at 8 weeks. Histopathological examination of the specimen showed focally composed ill-defined aggregates of closely packed thin wall capillaries some filled with

blood and focus showing poorly canalized vessel that was suggestive of cardiac capillary hemangioma (FIG 3). Radiation oncologist opinion was obtained and Patient was advised to undergo adjuvant radiation therapy.

Discussion: Primary cardiac hemangiomas are benign neoplasms deriving from vascular endothelial cells and extremely rare. They generally can be divided into capillary hemangioma, angiocavernoma, arteriovenous hemangioma. These tumors are frequently seen in the cardiac ventricle (right ventricle, 35 %; left ventricle, 34 %), followed in order by the right atrium (23 %), interatrial septum (11 %), interventricular septum (11 %), and left atrium (7 %). Different clinical presentations include chest congestion, polypnea, cardiac failure, pericardial effusion, and arrhythmia. Echocardiography is usually the first choice to diagnosis of cardiac hemangioma which can exactly and clearly show the size, location, amount and the pericardial structure. CT and MRI scan helps to delineate the extent and involvement of the surrounding structures by the tumour. Beside this, vaporous shadows presented in coronary arteriography can also support the diagnosis. In spite of all the methods above, the final diagnoses can be confirmed by the results of pathology. Differential diagnosis of mass lesions in the heart include thrombi, myxoma, lipoma, fibroma, cyst, and other malignant tumors such as angiosarcoma. In unresectable cardiac hemangiomas corticosteroid therapy, radiotherapy, vascular endothelial growth factor antagonists, and b-receptor blockers are indicated. A radiation dose of 30 to 36 GY is given in 10 to 12 fractions. Occlusion rate of hemangioma after radiation therapy is 70 to 80% at 3 to 6 months. Patients with a resectable tumor usually have a good prognosis, but those with an unresectable tumor may have a poor prognosis because of ventricular tachycardia, sudden death and local progression. Cardiac hemangiomas are rare tumors. Resectable tumors have a better prognosis. Involvement of vital structures in the heart are not always resectable due to the very high risk of bleeding during surgery. Multidisciplinary approach with surgery and adjuvant radiation provides a better prognosis.

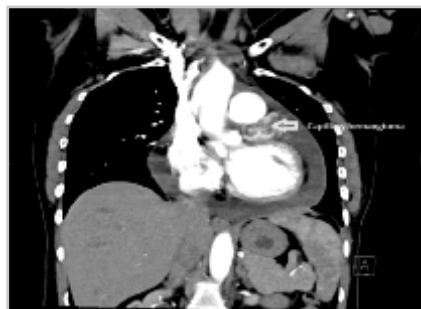


Fig 1 CT thorax shows mass attached to the main pulmonary artery and RVs

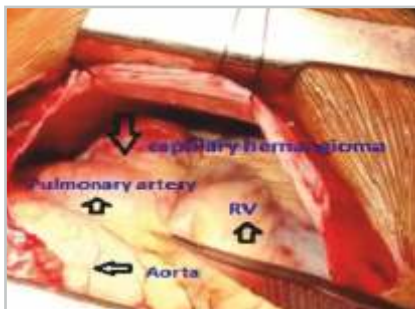


Fig 2 Intraoperative image shows highly vascular mass attached to the main pulmonary artery and RV

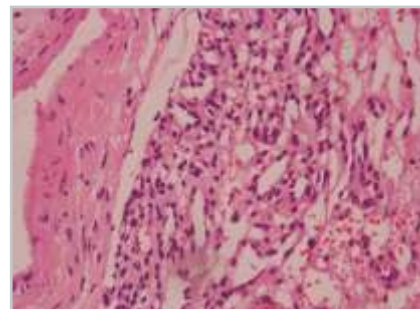


Fig 3 Histopathology shows ill-defined aggregates of thin wall capillaries and feeding vessel s/o cardiac capillary hemangioma



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